AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended): A fuzzy audio wireless music system for ~~wireless transmission of a signal from~~ BLUETOOTH communication of an audio music signal from the non-BLUETOOTH analog headphone jack connected to a battery powered BLUETOOTH compliant transmitter and received by a battery powered BLUETOOTH compliant ~~source to a battery powered~~ headphone receiver comprising:

a NON-BLUETOOTH compliant analog headphone jack from an audio music source in communication with ~~a connectable~~ said battery powered BLUETOOTH compliant transmitter;

said ~~connectable~~ battery powered BLUETOOTH compliant transmitter converts an analog audio music signal from said existing non-BLUETOOTH analog headphone jack to a BLUETOOTH compliant ~~contains an A/D converter wherein said A/D converter converts an analog music audio signal to a~~ digital signal using a CODEC and a BLUETOOTH front end at a signal rate of approximately 1.4 Mbps as defined in the BLUETOOTH standard;

said ~~A/D converter~~ CODEC in communication with a shift register generator that is BLUETOOTH compliant to create a unique user code and a convolutional encoder ~~and an interleaver~~ ;

said ~~interleaver~~ shift register generator in communication with a spread spectrum modulator that is BLUETOOTH compliant;

said BLUETOOTH compliant spread spectrum modulator in communication with a transmit antenna for ~~wireless~~ BLUETOOTH compliant transmission of a coded ~~digital signal~~ BLUETOOTH compliant packet to a receiving antenna at a radio frequency of approximately 2.4 GHz as defined in the BLUETOOTH standard;

said receiving antenna in communication with a spread spectrum demodulator that is BLUETOOTH compliant and a convolutional ~~deinterleaver and a~~ decoder; and

said ~~decoder~~ BLUETOOTH compliant spread spectrum demodulator in communication with a fuzzy logic ~~detector~~ detection system for additional decoding performance.

2. (currently amended): The fuzzy audio wireless music system as in claim 1 wherein said battery powered BLUETOOTH compliant headphone receiver having said fuzzy logic ~~detector~~ detection system with a detection method, comprising the steps of:

a) receiving a ~~user~~ BLUETOOTH compliant packet code bits having:

~~x(i) where i = 1, 2, ..., n is the set of~~ all bits that make up the packet ~~user~~ code ~~vector~~;

~~X(c), where c = 1, 2, ..., m represents each user assigned unique user code; wherein user X(1) has bit code [x(1) x (2).... X(n)] and user X(m) has bit code [x(1) x(2) ... x(n)] which is different form X(1)~~;

b) activating a fuzzy logic if rule for each bit energy in the packet code ~~based on each x in X wherein the if part sets are conditional densities to activate the if rule to the degree p[x(i)|X(c)] p[X(c)]~~;

c) activating a fuzzy then rule indirectly dependent on each ~~x in X wherein the then part sets are a weighted sum equal to p[x(i)]p[y|x(i)], i = 1,2, ..., n~~ received bit energy; and

d) performing a defuzzifying fuzzy logic operation to relate the bit energy to one of a digital one(1) and digital zero(0) bit representation. ~~of modal type.~~

3. (currently amended): A battery powered BLUETOOTH compliant headphone receiver possibly having ~~a~~ an additive fuzzy logic ~~detector~~ detection method, comprising the steps of:

a) receiving ~~a user~~ BLUETOOTH compliant packet code bits having:

~~x(i) where i = 1, 2, ..., n is the set of~~ all bits that make up the packet ~~user~~ code ~~vector~~;

~~X(c), where c = 1, 2, ..., m represents each user assigned unique user code; wherein user X(1) has bit code [x(1) x (2).... X(n)] and user X(m) has bit code [x(1) x(2) ... x(n)] which is different form X(1)~~;

b) activating a fuzzy logic if rule for each bit energy in the packet code ~~x in X wherein the if part sets are conditional densities to activate the if rule to the degree p[x(i)|X(c)] p[X(c)]~~;

c) activating a fuzzy then rule indirectly dependent on each ~~x in X wherein the~~

~~then part sets are a weighted sum equal to p[x(i)]p[y|x(i)], i = 1,2, ..., n~~ received bit energy; and

d) performing a defuzzifying fuzzy logic operation to relate the bit energy to one of a digital one(1) and digital zero(0) bit representation. ~~operation of modal type.~~

4. (currently amended): A method for battery powered ~~digital~~ wireless BLUETOOTH communication transmission and reception of high fidelity audio music between a battery operated BLUETOOTH compliant transmitter and a battery operated BLUETOOTH compliant receiver headphone comprising the step of:

connecting the plug attached to said battery operated BLUETOOTH compliant transmitter to ~~a~~ the existing non-BLUETOOTH compliant analog headphone jack of an audio music source;

converting ~~an~~ a music audio signal to a ~~digital~~ BLUETOOTH communication signal using ~~an A/D converter having a sampling rate of approximately 44.1 kHz multiplied by 16 bit quantization to produce a signal rate of approximately 1.4 Mbps~~ a CODEC and a BLUETOOTH front end;

encoding the ~~digital~~ BLUETOOTH communication signal using ~~a convolutional~~ BLUETOOTH standard convolutional encoding ~~and interleaving method~~;

creating a BLUETOOTH standard spread spectrum signal using a shift register generator to modulate a unique user code that adheres to the BLUETOOTH standard;

transmitting said BLUETOOTH standard spread spectrum signal at a radio frequency of approximately 2.4 GHz at a power level that adheres to the ~~ISM~~ BLUETOOTH standard for reception at a distance ~~of up to 10~~ less than approximately 30 feet from said battery operated BLUETOOTH compliant transmitter;

receiving said BLUETOOTH compliant spread spectrum signal at said battery operated BLUETOOTH compliant receiver headphones;

demodulating said BLUETOOTH compliant spread spectrum signal; ~~and optimal bit detecting of said unique user code using fuzzy logic technology;~~

convolutional ~~decoding and deinterleaving to receive said digital signal;~~ decoding of said BLUETOOTH communication signal as defined in the BLUETOOTH standard, with an option to apply fuzzy logic detection system to enhance bit detection performance;

converting said ~~digital~~ BLUETOOTH communication signal back to said analog music audio signal; and

communication said analog music audio signal to a headphone speaker within the

BLUETOOTH compliant headphone receiver.

5. (currently amended): The ~~battery powered receiver headphone~~ method as in claim 4 wherein said battery operated BLUETOOTH compliant receiver having a fuzzy logic detector method comprising the steps of:

a) receiving ~~a user~~ BLUETOOTH compliant packet code bits having:

~~x(i) where i = 1, 2, ..., n is the set of~~ all bits that make up the packet ~~user~~ code ~~vector~~;

~~X(c), where c = 1, 2, ..., m represents each user assigned unique user code; wherein user X(1) has bit code [x(1) x (2).... X(n)] and user X(m) has bit code [x(1) x(2) ... x(n)] which is different form X(1)~~;

b) activating a fuzzy logic if rule for each bit energy in the packet code ~~based on each x in X wherein the if part sets are conditional densities to activate the if rule to the degree p[x(i)|X(c)] p[X(c)]~~;

c) activating a fuzzy then rule indirectly dependent on each ~~x in X wherein the then part sets are a weighted sum equal to p[x(i)]p[y|x(i)], i = 1,2, ..., n~~ received bit energy; and

d) performing a defuzzifying fuzzy logic operation to relate the bit energy to one of a digital one(1) and digital zero(0) bit representation. ~~operation of modal type.~~